REMARKS

The Office Action dated January 24, 2008, has been received and reviewed. Claims 1-25 are pending in the subject application. All claims stand rejected. Claims 5, 16, and 20 have been amended herein and claim 21 has been canceled. Reconsideration of the subject application is respectfully requested in view of the above amendment and the following remarks.

Rejections based on 35 U.S.C. § 102(e)

"A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference." *Verdeggal Brothers v. Union Oil co. of California*, 814 F.2d 628, 631 2 USPQ 2d 1051, 1053 (Fed. Cir. 1987). "The identical invention must be shown in as complete detail as is contained in the . . . claim." *Richardson v. Suzuki Motor Co.*, 868 F.2d 1226, 1236, 2 USPQ 2d 1913, 1920 (Fed. Cir. 1989). *See also*, MPEP § 2131.

Claims 1-3, 5-12, 14-18 and 20-21 are rejected under 35 U.S.C. § 102(e) as being unpatentable by U.S. Publication No. 2002/0143928 to Maltz et al. (hereinafter "the Maltz reference"). Applicants respectfully traverse the rejection of claims 1-3, 5-12, 14-18, and 20-21, as hereinafter set forth.

Referring initially to independent claim 1, a method for determining link utilization in an IP network is recited. Claim 1, as amended herein, provides a method including collecting utilization values for links in the IP network over a predetermined polling period; collecting topographical information for links in the IP network, the *topological information identifying each link connecting each adjacent Point of Presence pair*; and correlating the link utilization values with the topological information.

By contrast, the Maltz reference fails to disclose collecting *topological information* for links, as set forth in amended independent claim 1. As used in the Maltz reference, network topology information "allows the TMS Statistics Collection Server . . . to know where to go to collect the desired information. The network topology information . . . preferably comprises (1) a list of network elements from which a given TMS Statistics Collection Server should collect information, (2) information identifying the type of equipment (i.e., vendor and product ID) comprising each network element, and (3) information indicating how communication should take place with that network element." *See, Maltz* at ¶ [0080].

While the Maltz reference refers to network topology information, it is respectfully submitted that the Maltz reference fails to disclose collecting topological information, as recited in amended independent claim 1, where the topological information identifies *each link connecting each adjacent Point of Presence pair.* Rather, the network topology information, as used in the Maltz reference, merely describes where the desired information may be collected and information indicating how communication should take place. The Office Action mentions that information indicating how communication should take place refers to "identifying links connecting adjacent Point of Presence pair." *See* Office Action, pg. 14. It is respectfully asserted, however, that even if information indicating how communication should take place refers to identifying paths for identification, the Maltz reference does not discuss identifying *each* link connecting each adjacent Point of Presence pair. Accordingly, the Maltz reference does not discuss collecting *topological information* for links, as recited in amended claim 1, where the topological information identifies *each link connecting each adjacent Point of Presence pair.*

Independent claim 5 is directed to a method for determining link utilization in an IP network. The method includes, among other things, multiplying the average link utilization by the number of links connecting the two Points of Presence to calculate a measure of total traffic flowing between the two Points of Presence that is insignificantly effected by one or more missing utilization values.

By contrast, the Maltz reference is directed to a "method and system of hierarchical collection and storage of traffic information-related data in a computer network." *See, Maltz* at ¶ [0068]. The Maltz reference discloses that it may perform a "missing value calculation (if the network element is unable to provide the value of a statistic for some measurement period, the processor can fill in a value for the missing statistic by reusing the value from a previous measurement period)." *See id.* at ¶ [0068]. In addition, the Maltz reference recites that "[i]f predictions are formed by averaging the last 10 measurements, then the TMS Statistics Collection Server can be equipped with enough storage so that it can store 10*X bytes of network information." *See id.* at ¶ [0074].

While the Maltz reference discusses performing missing value calculations by utilizing a value from a previous measurement period, it is respectfully submitted that the Maltz reference does not discuss multiplying the average link utilization by the number of links connecting the two Points of Presence to calculate a measure of total traffic flowing between the two Points of Presence that is insignificantly effected by one or more missing utilization values. Rather, the Maltz reference merely mentions that it utilizes a value from a previous measurement period in place of a missing value. *Replacing a missing value* with a value from a previous measurement period is in stark contrast to multiplying the average by the number of links connecting the two Points of Presence to calculate a measure of total traffic flowing between the

two Points of Presence that is insignificantly effected by one or more missing utilization values, as recited in independent claim 5.

In addition, while the Maltz reference discloses forming predictions by averaging the last 10 measurements, it is respectfully submitted that the Maltz reference fails to disclose *multiplying the average by the number of links* connecting the two Points of Presence to calculate a *measure of total traffic* flowing between the two Points of Presence that is insignificantly effected by one or more missing utilization values, as recited in independent claim 5. Rather, the Maltz reference merely discloses forming predictions by averaging *previous measurements*. As such, the Maltz reference does not disclose calculating a *measure of total traffic flowing between two Points of Presence* by multiplying the *average* link utilization by the *number of links* connecting the two Points of Presence, as recited in independent claim 5, that is insignificantly effected by one or more missing utilization values.

Claim 20, as amended herein, is directed to machine readable media for causing at least one network management station in an IP network to perform a method for determining link utilization in an IP network. The method includes, among other things, summing the link utilization values collected over a first predetermined time period for links connecting a pair of Points of Presence, wherein at least one link connecting a pair of Points of Presence has one or more missing utilization values; calculating a measure of total traffic flowing between the two Points of Presence by multiplying the average link utilization by the number of links connecting the two Points of Presence to compensate for the one or more missing utilization values of the at least one link connecting the pair of Points of Presence; and collecting topological information from the routers at one or more second predetermined time intervals, the topological information identifying each link connecting the pair of Points of Presence.

By contrast, the Maltz reference fails to disclose collecting *topological information* from the routers at *predetermined time intervals*, as set forth in independent claim 20. As used in the Maltz reference, network topology information "allows the TMS Statistics Collection Server . . . to know where to go to collect the desired information. The network topology information . . . preferably comprises (1) a list of network elements from which a given TMS Statistics Collection Server should collect information, (2) information identifying the type of equipment (i.e., vendor and product ID) comprising each network element, and (3) information indicating how communication should take place with that network element." *See, Maltz* at ¶ [0080]. In addition, the Maltz reference discusses that it may perform "scheduling (the processor can schedule when statistics should be collected from the network elements and when the resulting information should be transmitted to the remote storage)." *See id.* at ¶ [0068].

While the Maltz reference refers to network topology information, it is respectfully submitted that the Maltz reference fails to disclose *collecting topological information* from the routers at one or more *second predetermined time intervals*, as recited in independent claim 20, where the topological information identifies each link connecting the pair of Points of Presence. Rather, in the Maltz reference, scheduling merely refers to collecting *statistics* from the network elements and transmitting the statistics to remote storage. Such a scheduling of *statistic* collection, as specified in the Maltz reference, does not disclose collecting *topological information* at *predetermined time intervals*, as recited in amended claim 20, where the topological information identifies each link connecting the pair of Points of Presence. The Office Action sets forth that link utilization calculated by measuring number of bytes that flow out an interface each second, as used in the Maltz reference, indicates predetermined time intervals. It is respectfully submitted, however, that measuring the number of bytes that flow out

an interface each second is in contrast to *collecting topological information* at predetermined time intervals.

In addition, the Maltz reference fails to disclose calculating a measure of total traffic flowing between the two Points of Presence by multiplying the average link utilization by the number of links connecting the two Points of Presence to compensate for the one or more missing utilization values of the at least one link connecting the pair of Points of Presence. By contrast, the Maltz reference is directed to a "method and system of hierarchical collection and storage of traffic information-related data in a computer network." *See, Maltz* at ¶ [0068]. The Maltz reference discloses that it may perform a "missing value calculation (if the network element is unable to provide the value of a statistic for some measurement period, the processor can fill in a value for the missing statistic by reusing the value from a previous measurement period)." *See id.* at ¶ [0068]. In addition, the Maltz reference recites that "[i]f predictions are formed by averaging the last 10 measurements, then the TMS Statistics Collection Server can be equipped with enough storage so that it can store 10*X bytes of network information." *See id.* at ¶ [0074].

While the Maltz reference discusses performing missing value calculations by utilizing a value from a previous measurement period, it is respectfully submitted that the Maltz reference does not discuss calculating a measure of total traffic flowing between the two Points of Presence by *multiplying the average link utilization* by the *number of links* connecting the two Points of Presence to *compensate for the one or more missing utilization values* of the at least one link connecting the pair of Points of Presence. Rather, the Maltz reference merely mentions that it utilizes a value from a previous measurement period in place of a missing value. *Replacing a missing value* with a value from a previous measurement period is in stark contrast

to multiplying the average by the number of links connecting the two Points of Presence to compensate for the one or more missing utilization values.

In addition, while the Maltz reference discloses forming predictions by averaging the last 10 measurements, it is respectfully submitted that the Maltz reference fails to disclose *multiplying the average by the number of links* connecting the two Points of Presence to calculate a *measure of total traffic* flowing between the two Points of Presence to compensate for the one or more missing utilization values. Rather, the Maltz reference merely discloses forming predictions by averaging *previous measurements*. As such, the Maltz reference does not disclose calculating a *measure of total traffic flowing between two Points of Presence* by multiplying the *average* line utilization by the *number of links* connecting the two Points of Presence, as recited in independent claim 20, to compensate for the one or more missing utilization values of the at least one link connecting the pair of Points of Presence.

As the Maltz reference does not describe each and every element of independent claims 1, 5, and 20, Applicants respectfully request withdrawal of the § 102(e) rejections with regard to claims 1, 5, and 20. Each of claims 2-3, 6-12, 14-15, and 21, depend, either directly or indirectly, from independent claims 1, 5, and 20. As such, these claims are also believed to be in condition for allowance for at least the above-cited reasons. Accordingly, Applicants also respectfully request withdrawal of the § 102(e) rejections with regard to those claims. Each of claims 1-3, 5-12, 14-15, and 20-21 are believed to be in condition for allowance and such favorable action is respectfully requested.

Rejections based on 35 U.S.C. § 103(a)

A.) Applicable Authority

35 U.S.C. § 103(a) declares, a patent shall not issue when "the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains." The Supreme Court in Graham v. John Deere counseled that an obviousness determination is made by identifying: the scope and content of the prior art; the level of ordinary skill in the prior art; the differences between the claimed invention and prior art references; and secondary considerations. *Graham v. John Deere Co.*, 383 U.S. 1 (1966). To support a finding of obviousness, the initial burden is on the Office to apply the framework outlined in Graham and to provide some reason, or suggestions or motivation found either in the prior art references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the prior art reference or to combine prior art reference teachings to produce the claimed invention. *See*, *Application of Bergel*, 292 F. 2d 955, 956-957 (1961). Recently, the Supreme Court elaborated, at pages 13-14 of the KSR opinion, that "it will be necessary for [the Office] to look at interrelated teachings of multiple [prior art references]; the effects of demands known to the design community or present in the marketplace; and the background knowledge possessed by [one of] ordinary skill in the art, all in order to determine whether there was an apparent reason to combine the known elements in the fashion claimed by the [patent application]." *KSR v. Teleflex*, 127 S. Ct. 1727 (2007).

B.) Obviousness Rejection Based on U.S. Publication No. 2002/0143928 in view of U.S. Patent No. 6,882,930

Claims 16-19 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication Number 2002/0143928 to Maltz et al. (hereinafter the "Maltz reference") in view of U.S. Patent Number 6,882,930 to Trayford et al. (hereinafter the "Trayford reference"). As the asserted combination of references fails to teach or suggest all of the limitations of the rejected claims, Applicants respectfully traverse this rejection, as hereinafter set forth.

The Maltz and Trayford references, either alone or in combination, fail to teach or suggest each of the limitations of independent claim 16, as amended herein. Independent claim 16, as amended herein, is directed to a method for determining aggregate link utilization between two Points of Presence, wherein a plurality of links connect the two Points of Presence. The method recites, among other things, collecting link utilization values for one or more links connecting the two Points of Presence over a predetermined polling period, wherein at least one link connecting the two Points of Presence has one or more missing utilization values over the predetermined polling period; and multiplying the average link utilization by the number of links connecting the two Points of Presence to calculate a measure of total traffic flowing between the two Points of Presence that is insignificantly effected by one or more missing utilization values.

By contrast, the Maltz reference is directed to a "method and system of hierarchical collection and storage of traffic information-related data in a computer network." *See, Maltz* at ¶ [0068]. The Maltz reference discloses that it may perform a "missing value calculation (if the network element is unable to provide the value of a statistic for some measurement period, the processor can fill in a value for the missing statistic by reusing the

value from a previous measurement period)." *See id.* at ¶ [0068]. In addition, the Maltz reference recites that "[i]f predictions are formed by averaging the last 10 measurements, then the TMS Statistics Collection Server can be equipped with enough storage so that it can store 10*X bytes of network information." *See id.* at ¶ [0074].

While the Maltz reference discusses performing missing value calculations by utilizing a value from a previous measurement period, it is respectfully submitted that the Maltz reference does not discuss multiplying the average by the number of links connecting the two Points of Presence to calculate a *measure of total traffic* flowing between *two Points of Presence* that is not significantly effected by missing utilization values. Rather, the Maltz reference merely mentions that it utilizes a value from a previous measurement period in place of a missing value. *Replacing a missing value* with a value from a previous measurement period is in stark contrast to multiplying the average by the number of links connecting the two Points of Presence to calculate a *measure of total traffic* flowing between *two Points of Presence* that is *not significantly effected by missing utilization values*.

In addition, while the Maltz reference discloses forming predictions by averaging the last 10 measurements, it is respectfully submitted that the Maltz reference fails to disclose *multiplying the average by the number of links* connecting the two Points of Presence to calculate a *measure of total traffic* flowing between the two Points of Presence that is insignificantly effected by one or more missing utilization values. Rather, the Maltz reference merely discloses forming predictions by averaging *previous measurements*. As such, the Maltz reference does not disclose that a *measure of total traffic flowing between two Points of Presence* is calculated by multiplying the *average* by the *number of links* connecting the two Points of Presence, as recited in independent claim 16.

Further, the Trayford reference fails to overcome the deficiencies of the Maltz reference. The Trayford reference mentions estimating the an "actual traffic link delay that will occur for a link some time in the future by receiving real time traffic data relating to measured delays on traffic links and calculating the ratio of the most recently measured traffic link delay to the average historical link delay for the corresponding time step at which the measurement was taken and multiplying the average historical link delay fore the link at a future time step with the previously established ratio thus generating an estimate of the actual link delay that will occur for the link at the time step in the future." *See Trayford,* col. 16, lines 44-55.

Although the Trayford reference mentions estimating an actual link delay that will occur for the link at a time step in the future, it is respectfully submitted that the Trayford reference does not discuss multiplying the *average link utilization* by the *number of links* connecting the two Points of Presence to calculate a *measure of total traffic* flowing between *two Points of Presence* that is not significantly effected by missing utilization values. Rather, the Trayford reference merely mentions multiplying an average historical link delay at a future time step by a ratio to generate an estimate of the actual link delay that will occur for the link at the time step in the future. Multiplying an average historical link delay by a ratio to estimate an actual delay for a single link is in stark contrast to multiplying an average *link utilization* by the *number of links* connecting the two Points of Presence, as recited in independent claim 16, to calculate a *measure of total traffic* flowing between *two Points of Presence* that is *not significantly effected by missing utilization values*.

As the Maltz and Trayford references, either alone or in combination, do not teach or suggest each element of independent claim 16, Applicants respectfully request withdrawal of the § 103 rejection with regard to claim 16. Each of claims 17-19 depend, either directly or

indirectly, from independent claim 16. As such, these claims are also believed to be in condition for allowance for at least the above-cited reasons. Accordingly, Applicants also respectfully request withdrawal of the § 103 rejections with regard to those claims. Each of claims 16-19 are believed to be in condition for allowance and such favorable action is respectfully requested.

C.) Obviousness Rejection Based on U.S. Publication No. 2002/0143928

Claims 4, 13, and 22-25 have been rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Publication Number 2002/0143928 to Maltz et al. (hereinafter the "Maltz reference"). Applicants submit that a *prima facie* case of obviousness for the rejection of claims 4, 13, and 22-25 under § 103(a) has not been established.

As the Maltz reference fails to teach or suggest all of the claimed features of claims 4, 13, and 22-25, Applicants traverse the rejection. As discussed above, the Maltz reference fails to teach or suggest all of the claimed features of the rejected independent claims 1, 5, and 20 from which claims 4, 13, and 22-25 depend. Thus, withdrawal of the 35 U.S.C. § 103 rejection of claims 4, 13, and 22-25 is respectfully requested. Claims 4, 13, and 22-25 are believed to be in condition for allowance and such favorable action is requested.

CONCLUSION

For at least the reasons stated above, claims 1-25 are now in condition for allowance. Applicants respectfully request withdrawal of the pending rejections and allowance of the claims. If any issues remain that would prevent issuance of this application, the Examiner is urged to contact the undersigned – 816-474-6550 or kfeimster@shb.com (such communication via email is herein expressly granted) – to resolve the same. It is believed that no fee is due, however, the Commissioner is hereby authorized to charge any amount required to Deposit Account No. 21-0765.

Respectfully submitted,

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